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MECHANICS.

52. Proposed by S. ELMER SLOCUM, Union College, Schenectady, New York.

A chain 16 feet long is hung over a smooth pin with one end 2 feet higher than the other end and then let go. Show that the chain will run off the pin in about 7-5 second. [*Wright's Mechanics*, page 92.]

53. Proposed by J. C. NAGLE, M. A., C. E., Professor of Civil Engineering, Agricultural and Mechanical College of Texas.

Find the locus of the center of gravity of an arc of constant length for a parabola.

54. Proposed by C. H. WILSON, Poughkeepsie, New York.

A body slides from rest down a series of smooth inclined planes, whose total heights are h feet. Show that the velocity at the bottom is $\sqrt{2gh}$ feet per second. [From *Wright's Mechanics*.]

AVERAGE AND PROBABILITY.

51. Proposed by G. B. M. ZERR, A. M., Ph. D., Texarkana, Arkansas.

Three points are taken at random in a sphere and a plane passed through them. Find the average volume of the segment cut off from the sphere.

52. Proposed by B. F. FINKEL, A. M., M. Sc., Professor of Mathematics and Physics in Drury College, Springfield, Missouri.

A straight line of length a is divided into three parts by two points taken at random; find the chance that no part is greater than b . [From *Hall and Knight's Higher Algebra*.]

53. Proposed by Samuel E. Harwood, Professor of Mathematics, Southern Illinois State Normal University, Carbondale, Illinois.

Four Latin sentences are given. Number one has 12 words, two has 13 words, three and four have 6 each. What are the chances that two pupils will have them in the same order? Will the result vary with the number of pupils in the class?

EDITORIALS.

President George H. Harter, of Delaware College, Delaware, has just ordered a complete set of the MONTHLY.

We shall be pleased to pay 25 cents each for a limited number of copies of No. 6, Vol. I, and No. 11, Vol. II, of the MONTHLY. Any of our readers wishing to dispose of these numbers should write to us.

We are greatly pleased to note that the Board of City Trusts, Philadelphia, Pennsylvania, has recognized the long and faithful service of Professor Warren Holden in the following resolution: Resolved, That in consideration of forty-five years continued and faithful service, Warren Holden, A. M., Professor of Mathematics at Girard College, be retired January 31, 1897, at a salary of \$2,500 per annum.

So far, we have received only a few letters respecting the matter of publishing the portraits of our contributors. We shall be pleased to hear still further, and those who favor the plan may send their photos to us at once.

The paper by the late Ansel N. Kellogg, of Chicago, published in this issue was sent to the MONTHLY at the suggestion of Professor Irving Stringham, of the University of California. Professor Stringham says, "They [the formulæ] take us back to methods that were in vogue at the beginning of the century. But they are much superior in accuracy and rapidity of convergence to any I have found in the older books. They will be of some interest, I think, to mathematical readers.

Their author, the late Ansel N. Kellogg, of Chicago, was for a number of years prominent in newspaper and business circles throughout the country. Though a very busy man, he found time for mathematical meditation, and that he could think efficiently in this domain the paper presented sufficiently attests."

As we are very anxious to increase the subscription to the MONTHLY we make the following liberal offers :

1. To any person sending us 75 new subscribers at our regular price, we will make a present of a handsome set of the *Century Dictionary and Encyclopedia*.
2. To any person sending us 50 new subscribers at our regular price, we will make a present of a \$100 *Acme* or *Monarch Bicycle*.
3. To any person sending us 20 new subscribers at our regular price, we will make a present of the *Standard American Encyclopedia* [see advertisement on cover.]
4. To any person sending us 15 new subscribers at our regular price, we will make a present of a copy, in one volume, of the *Standard Dictionary* (Funk and Wagnalls').

In all cases the money must accompany the list of names sent in.

BOOKS AND PERIODICALS.

Determinants. Designed for High Schools, and Lower Classes of Colleges and Universities. By J. M. Taylor, M. S., Professor of Mathematics and Astronomy in the University of Washington and Director of the Observatory. 8vo. Cloth, 48 pages. Chicago : Werner School Book Company.

In this little book, Professor Taylor has set forth in a very clear and concise manner the fundamental principles of Determinants. We feel sure that this little work will go far towards popularizing the subject and bringing it within the easy comprehension of the students of our best High Schools.

B. F. F.